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New and Interesting North American Trichoptera

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The new species described herein represent very interesting additions to the known species of Trichoptera. The new *Atopsyche* presents several developments not yet described in other species. A new *Cyrptochia*, the fifth species in this interesting and virtually unknown genus, is described. A new genus is erected to accommodate a new member of the Goeridae—a highly specialized family of which very little is known.

I would like to express my gratitude to Mr. J. S. Buckett, University of California; Mr. Stanley Jewett, Portland, Oregon; Mr. Joe Schuh, Klamath Falls, Oregon and Mr. J. D. Vertrees, Roseburg, Oregon, for making collections available from which these new species were chosen. Unless designated otherwise, types are in the author's collection.

Atopsyche cordoba Denning, new species

This new species belongs to the *bolivari* group and of the described species is probably closest to *A. dampfi* Ross. Distinguishing characters are the dentate paracercus, the spinous processes of the aedeagal lobe, and the large pocket of scales on the hind wing. The presence of scales has not been reported from other species.

MALE.—Length 8-9 mm. Forewings brownish, densely covered with dark brown hairs especially heavy at pterastigma; hind wing with M bearing a few black scales at branching of M_{1+2} and M_3 , stem of Cu_1 bearing a row of black scales, Cu_2 about midway covered by a large elliptical-shaped pocket of densely packed black scales; intervenous membranous area of anal veins brownish and more heavily sclerotized than remainder of wing, these veins bear dense, long silky brownish hairs which, near the margin, are curled and curve upward against the membrane. Palpi and legs yellowish, densely covered with short black hair. Sternum of segment 6 bearing a long conical-shaped process with an acute spine apically; sternum 7 bearing a shorter, slender, conical process, fig. 1B. Genitalia as in fig. 1. Paracercus reaching caudad almost to aedeagus, dorsal margin developed into three large, one short dentate processes (size, shape somewhat variable), apex setiferous. Filacercus long, slender, capitate. Basal segment of clasper large, bulky, apex indented to receive apical segment, mesal margin slightly shelf-

like; apical segment narrow, distally truncate, apex directed ventrad. Aedeagus lobes lightly sclerotized, apex flared, serrate (somewhat variable in number, shape, and size), near base a large sclerotized prong curves ventrad branching into a short and a long acuminate spine; inner rod acuminate, long, curved ventro-caudad, fig. 1A.

FEMALE.—General color, size, characteristics similar to the male. Sternum 6 and 7 each bear a prominent mesal process similar to the male. Sternum 8 with a dense brush of long brownish hair. Genitalia as in fig. 2. Ninth tergum band-like, sternum narrowed and curved caudad; a triangular-shaped flap located on lateral aspect covering an internal sclerotized receptacle, margin of flap densely covered with long setae. Tenth tergum trianguloid from lateral aspect, semi-membranous apical portion bearing considerable long brownish setae.

Holotype male.—CORDOBA, VERACRUZ, MEXICO, 15 September 1966, light trap, A. B. Lau. Allotype female. Same data as for holotype. Paratype, three males, four females, same data as for holotype; two males, same data as for holotype except 31 October 1966. (From J. S. Buckett, University of California collection). Holotype, allotype to be deposited, University of California at Davis, California.

TRIPLECTIDES GRACILIS Burmeister

This species is known from southern South America to Guatemala. The following is the first recorded Mexican record and the farthest north the species has been taken. 1 male, Cordoba, Veracruz, Mexico, 22 October 1966, A. B. Lau (J. S. Buckett collection).

Cheumatopsyche pitella Denning, new species

This new species may be distinguished from other described *Cheumatopsyche* by the truncate apex of the ninth segmental lateral lobe, by the coalescence of the basal part of the clasper to the ninth segment, and by the large expanded apex of the aedeagus.

MALE.—Length 7 mm. General color light brown. Wings concolorous, light brown, legs and antennae trifle lighter in color. Spurs yellowish, large and prominent. Genitalia as in fig. 3. Ninth segment with a large triangular lateral lobe, apex blunt and directed dorsad; tergum narrowed and extended dorsad beyond remainder; from dorsal aspect tergum divided into two triangular caudad directed lobes. Tenth tergum lightly sclerotized, short, wide, ventral corner broadly rounded; lateral process of tergal lobe prominent, long, slender. Clasper long; basal segment expanded distally from a narrow base, basal third merged to a slender sclerite attached to ninth segment, thus movement is restricted; apical segment wide, about same width throughout, apex sub-acute; from caudal aspect, fig. 3A, apices convergent. Aedeagus, fig. 3B, stout, apex enlarged, ventral lobe of apex massive, rounded, curved ventro-caudad.

FEMALE.—Length 8 mm. General color and characteristics same as for male. Ninth segment as in fig. 4. Lateral portion of ninth segment wide, narrowed dis-

tally to an obtuse apex bearing a tuft of setae. Clasper receptacle opening large, rounded, extending almost to apex.

Holotype male.—20 MILES EAST OF VILLA UNION, SINALOA, MEXICO, 31 January 1964, at light, M. E. Irwin. Allotype female. Same data as for holotype. Paratype, two females, same data as for holotype.

***Limnephilus kalama* Denning, new species**

This species is closest to *L. santanus* Ross, from which it differs in the quadrate-shaped cerci, in the long narrow tenth tergal lobes, in the lateral arms of the aedeagus and other details.

MALE.—Length 15 mm. General color dark brown. Palpi and legs yellowish; spurs 1-3-4. Antennae dark brown, moderately setose. Wings irregularly irrorate with brownish and luteus spots. Fore basitarsus almost twice length of second; femur with a short line of black spinules along posteromesal margin. Eighth tergum sclerotized much heavier than the other abdominal segments, no posteromesal modifications. Genitalia as in fig. 5. Ninth segment narrowed ventrally to a narrow strap, expanded dorsally and curved caudad, distal corner bent strongly mesad. Cerci large, quadrate from lateral aspect, directed caudad, distal margin blackish and irregular; viewed dorsally, fig. 5A, cerci convex, not contiguous, meso-distal corner curved ventrad; mesal surface concave, glabrous. Tenth tergite stout, curved dorsad apically to a black acute apex; from dorsal aspect, fig. 5A, narrowed distally to a sub-acute blackish apex, setation sparse. Claspers narrow, about same width throughout, apex truncate; from ventral aspect apices curved mesad. Aedeagus, fig. 5B, with basal portion striated, apex curved dorsad and not striated; lateral arms sinuate, apex divided into a long narrow acute dorsal branch and a shorter narrow acute ventral branch, each margin bearing a dense row of long, flattened, appressed setae.

Holotype male.—NEAR HEAD OF KALAMA RIVER, SKAMANIA COUNTY, WASHINGTON, 11 September 1965, Stanley S. Jewett, Jr. Type will be deposited in California Academy of Sciences, San Francisco, California. Paratype, one male, two miles east of Elsie, Clatsop County, Oregon, 23 September 1967, Stanley S. Jewett, Jr.

***Limnephilus sierrata* Denning, new species**

This species is a relative of *L. tarsalis* Banks. Diagnostic characters exist in the triangular lobe of the clasper, in the longer than wide cerci, in the apparent two long setae at the apex of the aedeagal lateral arm.

MALE.—Length 10 mm. General color dark brown. Wings dark brown with luteus speckling, heavily pilose. Macrochaetae of head large, dark. Fore femur with a linear row of black spinules along mesal surface for about three-quarters of length, basitarsus almost one-half length of second segment. Spurs 2-4-4. Eighth tergum with mesal patch of dense black short setae. Genitalia as in fig. 6. Ninth segment wide laterally, tergum reduced to a thin brownish strap, sternum reduced to a narrow band. Cerci directed dorso-caudad, convex from dorsal or lateral view, distal margin rounded; from dorsal aspect cerci widely separated, mesal

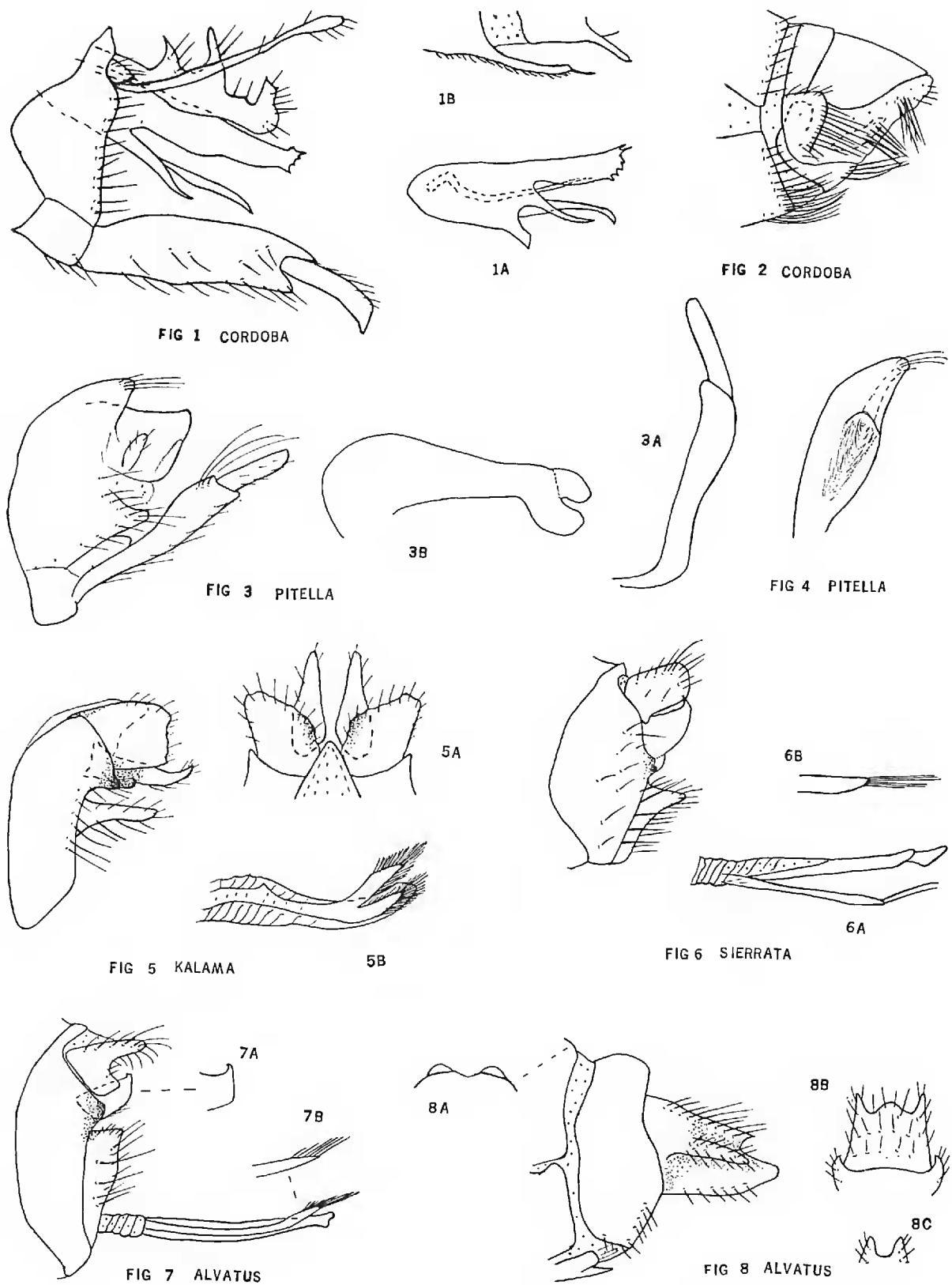


Fig. 1. *Atopsyche cordoba* Denning, male genitalia, lateral view. 1A, aedeagus, lateral view. 1B, sternum 6 and 7, lateral view. Fig. 2. *Atopsyche cordoba* Denning, female genitalia, lateral aspect. Fig. 3. *Cheumatopsyche pitella* Denning, male genitalia, lateral view. 3A, claspers, caudal aspect. 3B, aedeagus, lateral view. Fig. 4. *Cheumatopsyche pitella* Denning, female ninth sternum, lateral view. Fig. 5. *Limnephilus kalama* Denning, male genitalia, lateral view. 5A, tenth

margin curved ventrad; from ventral aspect mesal surface concave. Tenth tergal lobes thin, ventro-distal margin curved dorsad to an acute apex; from caudal aspect sclerites have developed a large obtuse ventral lobe located on caudal surface of capsule. Clasper merged into posterior margin of ninth segment, dorsal portion expanded into a large triangular lobe. Aedeagus, fig. 6A, long, central portion lightly sclerotized; lateral arm long, cylindrical, sclerotized entire length, tapering to an acute apex. Apex of aedeagus appears to bear two long-curved setae, however each is composed of several long, slender tightly appressed setae, which may be separated as in fig. 6B.

Holotype male.—NELSON CREEK, SW OF JOHNSTOWN, PLUMAS COUNTY, CALIFORNIA, 1 September 1965, J. S. Buckett. Type will be deposited in University of California collection, Davis, California.

***Limnephilus alvatus* Denning, new species**

This new species is closest to *L. tarsalis* Banks, from which it differs in the deeply emarginated cerci, in the quadrate-shaped tenth tergite, and the apex of the lateral arm of the aedeagus.

MALE.—Length 11 mm. General color light brown. Wings tan, veins dark brown with considerable black setae. Femur of forelegs bearing an inner dense row of black spinules, corresponding portion of tarsi also bearing a row of black spinules; fore basitarsus half length of second. Eighth tergite simple, only a few scattered setae. Genitalia as in fig. 7. Ninth segment narrowed ventrally to a narrow tergal strap, meso-distal corner obtuse, curved mesad. Cerci distal margin with wide arcuate indentation resulting in a prominent digitate dorsal lobe and a narrow truncate ventral lobe whose mesal corner is developed into a black acute spine directed mesad, almost confluent with tenth terga; from dorsal aspect cerci separated, apices obtuse, divergent. Tenth tergite heavily sclerotized, short, wide, distal margin truncate, dorso-distal corner produced dorsad into an acute apex, best seen from ventro-lateral aspect, fig. 7A; from dorsal aspect lobes divergent, apices almost touching ventral lobe of cerci. Clasper a long narrow sclerite merging with posterior margin of ninth segment. Aedeagus long, central portion lightly sclerotized; lateral arms sclerotized, as long as central portion, slender, cylindrical, apex bearing a dense brush of long, tightly appressed yellowish setae, fig. 7B.

FEMALE.—Length 10 mm. General color, and characteristics of wings, appendages, and body similar to male. Genitalia as in fig. 8. Eighth tergum, dorsal view, fig. 8A, with mesal margin emarginate. Ninth segment generally wide throughout except sternum which is reduced to a narrow strap. Tenth tergum long, lateral portion produced caudad as a digitate lobe, apex acute, setose; from dorsal aspect, fig. 8B, mesal lobe short, rounded. Tenth sternum trough-like, pro-

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tergite, dorsal view. 5B, aedeagus, lateral view. Fig. 6. *Limnephilus sierrata* Denning, male genitalia, lateral aspect. 6A, aedeagus, lateral view. 6B, apex of aedeagus. Fig. 7. *Limnephilus alvatus* Denning, male genitalia, lateral view. 7A, tenth tergite, ventro-lateral view. 7B, apex of aedeagus. Fig. 8. *Limnephilus alvatus* Denning, female genitalia, lateral view. 8A, eighth tergum, dorsal view. 8B, tenth tergum, dorsal view. 8C, tenth sternum, ventral view.

jected caudad beyond remainder, from ventral aspect, fig. 8C, distal margin bifurcate.

Holotype male.—NEAR LETHBRIDGE, ALBERTA, 29 July 1965, light trap (J. S. Buckett collection). Allotype female. Same data as for holotype.

***Cryptochia califca* Denning, new species**

This, the fifth species in the genus, is the second species discovered in California. This new species is closest to *C. furcata* Denning. Diagnostic characters are the short tenth terga, the long caudad curved ninth tergum, the deeply furcated ventral portion of the aedeagus, and several other details. In the 1964 Key to Species Based on Males, *C. califca* keys to *C. neosa* Denning.

MALE.—Length 9 mm. General color blackish. Wings dark, heavy black pilosity; head, mesothorax, and metathorax black, prothorax golden; macrochaetae of prothorax and head golden colored, legs tan. Spurs brown, 1-3-4. Antennae dark brown. Eighth segment not modified. Genitalia as in fig. 9. Ninth segment sternum narrowed, laterally tergal portion widely expanded, curved caudad; from dorsal aspect a wide circular incision narrows tergum to a narrow band. Tenth tergum short, stout, brownish pigmented, directed ventro-caudad, apex blunt; from dorsal aspect, fig. 9A, cleft nearly to base, tapering slightly to an obtuse apex. Cerci short, sub-triangular, inconspicuous. Ventrad to cercus is a complex structure, as follows: (1) a large stout horn-like dorsad curved spur reaching caudad almost as far as tenth tergum and (2) a short heavily sclerotized digitate process, which arises from basal portion of (1). Clasper is a long, slender lightly sclerotized sclerite attached to posterior margin of segment 9, filamentous process short, slender, curved dorso-caudad; from caudal aspect sclerite is wide, flat, appressed to caudad surface of segment 9, an apodeme connects mesal margin to ventral portion of aedeagus. Aedeagus, fig. 9B, with a dorsal pair of heavily sclerotized acuminate blades, apex acute and curved ventrad; ventral portion massive, heavily sclerotized, furcate to base, dorso-distal portion semi-membranous.

Holotype male.—TWO MILES WEST OF SIERRA CITY, SIERRA COUNTY, CALIFORNIA, 7 June 1965, S. G. Jewett, Jr.

GOERIDAE

This is a small family consisting of four genera and eight species found from the Atlantic to the Pacific coastal areas. Four of the species and two genera are confined to the eastern area, the known remainder are found in the northwestern coastal region.

The new genus, *Goeracea*, is of interest because its two species possess scales on the forewings, a phenomenon not recorded in the other genera of the family. The possession of scales on the wings are found in very few of the Trichoptera—as for example, in some *Lepidostoma* of the Lepidostomatidae, in one known species of *Atopsyche* of the Rhyacophilidae and in this genus of this family.

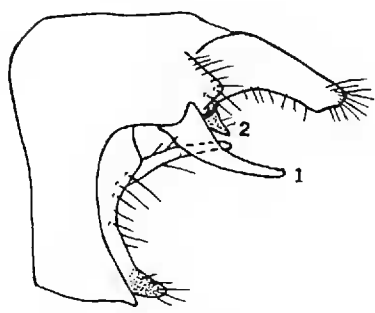
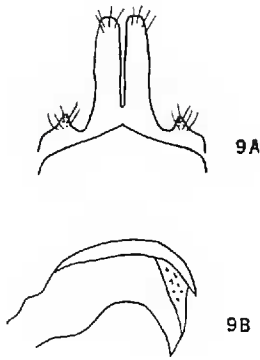
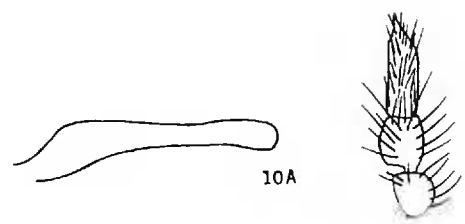


FIG 9 CALIFCA



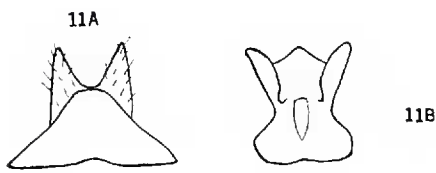
9A

9B



10A

FIG 10 ARCHAON

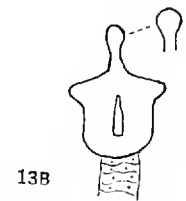


11A

11B



12A



13B

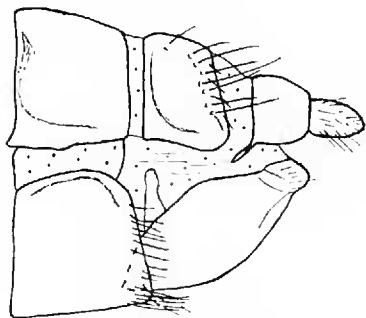


FIG 11 ARCHAON



FIG 12 GENOTA

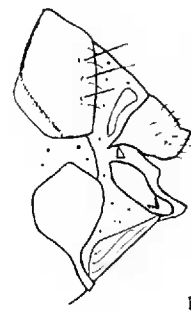
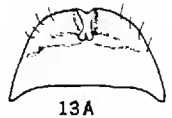
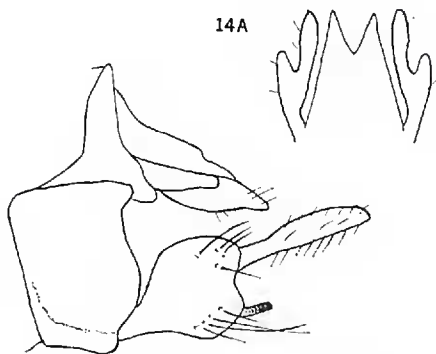


FIG 13 GENOTA

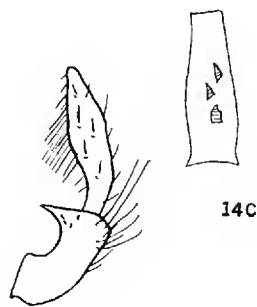


13A



14A

FIG 14 OREGONA



14B

14C

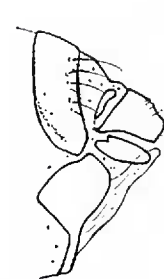


FIG 15 OREGONA



15A



15B

Fig. 9. *Cryptochia califca* Denning, male genitalia, lateral view. 9A, tenth tergum, dorsal view. 9B, aedeagus. Fig. 10. *Goera archaon* Ross, maxillary palpus, ventral view. 10A, aedeagus. Fig. 11. *Goera archaon* Ross, female genitalia, lateral view. 11A, tenth tergum, dorsal view. 11B, bursa copulatrix. Fig. 12. *Goeracea genota* (Ross), aedeagus, ventral aspect. 12A, tenth tergum, dorsal view. Fig. 13. *Goeracea genota* (Ross), female genitalia, lateral view. 13A, tenth tergum, dorsal view. 13B, bursa copulatrix. Fig. 14. *Goeracea oregona* Denning, male genitalia, lateral view. 14A, tenth tergum and clasper, dorsal view. 14B, clasper, ventral view. 14C, aedeagus, ventral view. Fig. 15. *Goeracea oregona* Denning, female genitalia. 15A, tenth tergum, dorsal view. 15B, bursa copulatrix.

GOERA ARCHAON Ross

This species is currently known from scattered localities in western Oregon. In addition to the description of the male by Ross (1947) a few additional details may be added.

MALE.—The maxillary palpus, fig. 10, consists of three segments; first segment short, narrow, second segment quadrate, third segment long, tapering; all segments setose especially the third which is densely covered with closely appressed scale-like yellowish setae. First antennal segment longer than width of head, covered with fine yellowish hairs. Spurs prominent, 2-4-4. Sixth sternum bearing 7 long spines, the center 2 or 3 are long, flat, wide. Aedeagus, fig. 10A, cylindrical, long, tapering toward center, apex blunt, dorso-distal portion semi-membranous.

FEMALE.—Length 9 mm. General color and characteristics similar to male except usual antigenetic differences. Abdominal segments have no modifications; a fairly dense tuft of fine whitish hairs present on sternum 7. Genitalia as in fig. 11. Ninth sternum, lateral aspect, wide; narrowed distally. Tenth tergum elongate, ovoid, apex sub-acute; from dorsal aspect, fig. 11A, divided into two triangular caudad directed lobes, quite densely setose. Bursa copulatrix, fig. 11B, constricted laterally, no dorsal arm, lateral lobes elliptical, aperture long and slender.

Description of female based on one specimen from seven miles northwest of Roseburg, Oregon, 17 June 1964, J. D. Vertrees. Black light trap.

Goeracea Denning, new genus

This genus differs from male *Goera* by the absence of abdominal ornamentation; by the third segment of the maxillary palpus being only a trifle longer than the second, none of the segments are modified; and by the presence of scales on the forewings. It differs from female *Goera* by the reduction of segment 9, by the blunt, declivous tenth tergum, and by the long dorsal arm of the bursa copulatrix. The genus differs from male *Goerita*, to which it is related, by the above mentioned characters and in addition by the small eyes and resultant wide malar space which is at least three times the length of the eye, by the first antennal segment being longer than the length of the eyes and by the branching of M_{1+2} in the forewing before crossvein *rm* rather than at the crossvein.

TYPE OF THE GENUS: *Goerita genota* Ross

GOERACEA GENOTA (Ross)

In addition to the description of *G. genota* Ross (1941) additional details may be given. In the males a fairly dense row of scales present on *Sc* and a few scattered scales on *R*₂ and *R*₃ of the forewings. Tenth tergite, dorsal aspect, fig. 12A, lightly sclerotized, distal margin with ovate incision; cerci are large lateral expansions and arise from base of

tergum. Aedeagus, ventral aspect, fig. 12, short, cylindrical; a pair of short triangular sclerotized structures and a flat ovate process occur internally.

FEMALE.—Genitalia as in fig. 13. Ninth tergum reduced to a slender elongate sclerite, sternum reduced to an elliptical sclerite ventrad to tenth tergum. From lateral aspect, tenth tergum almost quadrate; from dorsal aspect, fig. 13A, mesal portion with a clear non-pigmented area margined by brown pigment. Bursa copulatrix, fig. 13B, with a long slender dorsal arm, rounded lateral lobes, and a very slender median aperture. Drawings from a collection of 7♂, 1♀ from Wood River Spring, Klamath County, Oregon, 12 June 1964, Joe Schuh.

The species is known from scattered localities in southern and western Oregon to Vancouver, British Columbia (collected 6 April 1957, H. B. Leach).

***Goeracea oregona* Denning, new species**

This new species differs from the male *G. genota* (Ross) in a lighter brown color and less pilosity of wings and appendages. In the male the meso-basal portion of the basal segment of the clasper is developed into an acute spine-like prong instead of the massive sclerotized process of *G. genota*; ninth tergum more constricted; distal margin of tenth tergum with a deep triangular incision. In the female the eighth tergum is narrow, crescent-shaped not wide as in *G. genota*, the mesal non-pigmented area of the tenth tergum rounded and wide, the bursa copulatrix is much more slender.

MALE.—Length 7 mm. General color light brown. Wings, antennae, appendages, about same color, thorax and head dark brown. Maxillary palpi, held in front of face, three segmented and not modified. Forewings with row of small dark scales along Sc for about half length of vein, a few scattered dark scales on R₂ and R₃. Spurs 2-4-4. Eighth tergum sclerotized heavier than others, somewhat crescent-shaped, bearing long setae. Genitalia as in fig. 14. Ninth segment abruptly narrowed dorsally to a narrow strap; sternum wide, lateral margin rounded. Tenth tergum, dorsal aspect, fig. 14A, lightly sclerotized, distal margin with deep mesal incision, apical lobes triangular; from lateral aspect dorsal margin irregular with a notch toward apex. Cerci, lateral aspect, large, consists of a lateral basal expanded portion and a basal digitate lobe; from dorsal aspect, fig. 14A, cerci project beyond tenth tergum, bilobed, apices sub-acute. Clasper with basal segment robust, meso-ventral corner produced caudad as a slender mesad curved prong, apical segment long, slender; from ventral aspect, fig. 14B, mesal margin of basal segment with a wide arcuate incision resulting in an acute mesad spine. Aedeagus short, cylindrical; from ventral aspect, fig. 14C, a pair of internal short brownish triangular processes and a single very faintly pigmented process are discernible.

FEMALE.—General size, color, and characteristics similar to male. Length 7 mm. Maxillary palpi five segmented, third segment about equal in length to fifth. No scales on wings. Genitalia as in fig. 15. Eighth tergum crescent-shaped, curved ventrad further than others; sternum semi-circular lateral portions joined by a narrow strap; entire mesal sternal area incised to form a large arcuate light sclerotized area. Ninth tergum reduced to a slender sclerite, ninth sternum an elongate narrow sclerite ventrad to tenth. The tenth tergum declivous, truncate distally, from dorsal aspect, fig. 15A, mesal area non-pigmented, the clear membranous area appears as a narrow incised notch. Bursa copulatrix, fig. 15B, narrow, dorsal arm long, narrow, rounded, lateral lobes triangular, median aperture narrow.

Holotype male.—16 MILES S. E. RUCH, JACKSON COUNTY, OREGON, FRENCH GULCH ROAD, 22 May 1961, Joe Schuh. Allotype female. Same data as for holotype. Paratypes nine males, one female, same data as for holotype.

New Species of Elaphidionini from Mexico

(Coleoptera : Cerambycidae)

JOHN A. CHEMSAK AND E. G. LINSLEY

University of California, Berkeley

The following new species of Mexican elaphidionine Cerambycidae are described at this time to make their names available for other studies now in progress.

Support through National Science Foundation Grant GB-4944X is gratefully acknowledged. Material was also collected during expeditions sponsored by the Associates in Tropical Biogeography, University of California, Berkeley.

Aneflus (Protaneflus) sericatus Chemsak and Linsley, new species

(Fig. 1)

MALE.—Form large, subcylindrical; integument reddish brown, appendages darker; pubescence white, uniformly fine, silky, appressed, obscuring surface. Head almost impunctate on vertex, median channel extending to about posterior margin of eyes; pubescence dense, appressed, ivory colored, erect hairs very sparse; antennae 12-segmented, longer than body, segments three to five spined internally, sixth dentate, segments from third expanded at apices, pubescence dense, very fine, pale, appressed, also with very short, yellowish, erect pubescence on each segment, apices of segments with a few long suberect hairs which diminish in length toward apex, third segment subequal to scape in length, fourth slightly longer than third, fifth longer than fourth, sixth to eleventh subequal to fifth, twelfth subequal to fourth. Pronotum longer than broad, cylindrical, sides feebly rounded, apex with a narrow, glabrous, impressed margin, base slightly constricted; disc almost plane,